

suspended. Below this, on the floor of the cave, was a boulder, firmly embedded in the earth, and unaffected by the ice; this constituted my fixed point, a line being cut on it to correspond with the centre of the bob. In this way any movement of the staves with the ice could easily be measured off. The following are some of the results obtained, and I would draw special attention to the fact that, although the valley narrows considerably towards the snout end of the glacier, and in consequence one would expect an increase in the flowing speed, the observations prove a decrease in speed to nearly one-third. Movement in cave from August 1 to September 18, or forty nine days, max. '354 in., min. '093 in., mean '176 in. per day. (The surface movement taken at side of glacier, three-eighths of a mile from snout, up the valley, amounted to '516 in. per day.) End of glacier receded in the same time 19 ft., or 4'65 in. per day. Ice advanced 8½ in.; total loss in length 18 ft. 3¼ in., or nearly 4'5 in. per day. I must add that the point of observation was fixed at 40 ft. from the entrance, as beyond that and further in the cave the floor formed part of the glacier, and no fixed station could be found. Also, the surface friction of the ice on the shore—both at the side of the glacier, where the surface measurements were made, and at the cave—was considered about equal, and could therefore not account for the great difference of movement. HUGO LEUPOLD

November 10

Arctic Research

WITH reference to a letter in your number of this week (NATURE, vol. xxv. p. 53), in which it is stated that the Arctic shores trending north with a *western* aspect, are most encumbered with ice, and that those with an *eastern* aspect are most free from ice; I beg to suggest that, in order that your readers may not be misled on a point of geographical interest, you would do well to insert the following extract from the writings of Sir Edward Parry:—

"I will mention a circumstance which has particularly forced itself upon my notice in the course of our various attempts to penetrate through the ice in these regions; which is that the eastern coast of any portion of land, or what is the same thing, the western sides of seas or inlets, having a trending at all approaching to north and south, are, at a given season of the year, generally more encumbered with ice than the shores which have an opposite aspect. The four following may be adduced in illustration of this fact, and cannot but appear somewhat striking when considered in viewing a map which exhibits the relative position of the shores in question.

"It is well known that, in the extensive northern sea reaching from latitude 60° to 80°, bounded on the east by Lapland and Spitzbergen, and on the west by Greenland; the whole of the latter coast is blocked up by ice throughout the summer, so as to make it at least a matter of no easy enterprise to approach it, while the navigation of the eastern portion of that sea may be easily performed without difficulty, even to a very high latitude, and at an early part of the season. A second equally well-known instance occurs in the navigation of Davis Strait, which, from about Resolution Island, in latitude 61½°, to the parallel of at least 70, is usually inaccessible as late as the month of August, and a great deal of it, in summer, is not accessible at all; while a broad and navigable channel is found open on the eastern side of the strait (that is, on the western coast of Greenland) many weeks before that time. We experienced a third and very striking example of this kind in coasting the eastern shore of Melville Peninsula in the years 1822 and 1823, the whole of that coast being so loaded with ice as to make the navigation extremely difficult and dangerous. Now, on the eastern side of Fox Channel, there is reason to believe, as well from the account of that navigation in 1631, and that of Baffin in 1615, as from our own observations, that there is little or no ice during the summer season. The last instance of the same kind which I shall mention is that of Prince Regent's Inlet, and of which the events of this voyage furnish too striking a proof, the ice appearing always to cling to the western shore in a very remarkable manner, while the opposite coast is comparatively free from it.

"These facts, when taken together, have long ago impressed me with the idea that there must exist in the Polar regions some general motion of the sea towards the west, causing the ice to set in that direction, when not impelled by contrary winds or local and occasional currents, until it butts against those shores which are actually found to be most encumbered by it."

I need only add that all subsequent observation has confirmed the accuracy of Sir Edward Parry's general rule; to which of course there are exceptions caused by the action of local currents and winds.

CLEMENTS R. MARKHAM

21, Eccleston Square, November 19

Curious Formations of Ice

DURING a botanical expedition recently made to Gangotri Glacier I noticed, early on the morning of October 6, some very beautiful and curious formations of ice, which must have been formed during the previous night. It was freezing hard when I left my camp, after an early breakfast. The small pools beside the river were completely frozen over, and the smooth boulders of granite were coated with thick flakes of ice, which greatly increased the difficulty and danger of walking. Ascending a steep grassy slope (a favourite feeding-ground at this time of the year for barhal, or Himalayan sheep), I found the ground clothed over with small masses of pure white ice, very like mushrooms at a distance; I cannot give a better description of their general character than to liken them to a certain kind of thin, wafer-like cylindrical biscuit, which is sometimes eaten as an accompaniment of ices, only they were pure white and not cylindrical, but rather funnel-shaped, the larger opening being uppermost. In most cases there were two to four of these funnels, forming clusters round the lower portion of the stems of a species of *Polygonum*, which was abundant in this part of the valley, in an extremely dried-up condition. I should be glad to know if this curious kind of ice structure has been observed elsewhere.

Saharanpore, N.W.P., October 31

J. F. DUTHIE

Meteor

A MAGNIFICENT purple meteor was observed here on November 15, at 5h. 54m. p.m. G.M.T., by the Rev. A. Corti and one of the assistants of the Observatory. When first seen below β Aurigæ it was not very bright, but as it was passing through the constellation Lynx its brilliancy increased until it outshone Jupiter. Its shape was at first round, but, when it had passed near ϕ Ursæ, it burst into three pieces between γ and χ Ursæ, the largest of the three pieces being closely followed by the other two, which were as bright as first-magnitude stars. They all disappeared near η Ursæ, the total arc described being more than 70°. The meteor was visible for seven seconds, and left a long train, which soon disappeared. The velocity of the meteor decreased gradually as it approached its bursting point.

S. J. PERRY

Stonyhurst Observatory, Whalley, November 17

AT a quarter to five yesterday afternoon, when the sun had scarcely set and no star was visible, I and another inhabitant of this place saw a large blue meteor issue from a height of twenty degrees above the north-west horizon, and fall in a sharp curve for, say fifteen degrees, until it disappeared behind some woods. In falling it scattered large fragments behind it, but retained its nucleus, beside which Mars looked quite sickly. How vivid must the meteoric light have been!

M. L. ROUSE

Sunnymead, Chislehurst Common, November 21

I OBSERVED a fine meteor last night at 1'3 a.m. It came into sight so closely in the neighbourhood of a brilliant white star, which I took to be Sirius, that, as it shot in an apparent straight line, or segment of a very large arc, across the sky, midway between Orion, then due south, and the horizon, the momentary illusion to the eye was that the star, which it equalled in magnitude and brilliancy had left its place and travelled west.

Bregner, Bournemouth, November 18

HENRY CECIL

ABOUT 5.45 on the evening of the 15th inst. a meteor, larger than Jupiter, but not so bright, appeared under Capella, and took a horizontal course, till it disappeared at about the same distance below the terminal star in the tail of Ursa Major. I never saw so long a flight. Twice in its course it disappeared or became very faint. Near the end it broke into two, the second part following the former. At any computation of its distance its flight in the upper regions of the atmosphere must have been in an enormously extended path. My son, who was with me, conjectured that its disappearance might be owing to its passing

through a deep trough, or hollow of a wave, in the surface of the atmospheric ocean; in which the diminution of the friction might occasion a loss of incandescence; a suggestion rather favoured by the repetition of the phenomenon. Perhaps the meteor was only making ducks and drakes.

Rainhill, November 17

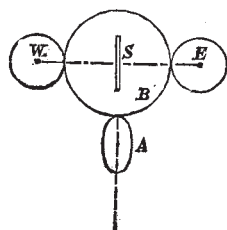
HENRY H. HIGGINS

Integrating Anemometer

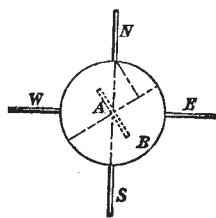
J'ai lu avec beaucoup d'intérêt la controverse suscitée dans les colonnes de votre estimable journal, à propos de "l'Anémomètre Intégrateur" présenté par M. Hele Shaw et le Dr. Wilson à la dernière réunion de "l'Association Britannique." Il arrive souvent, dans l'histoire des inventions, qu'une même idée, quoique diversement modifiée, vient presque simultanément à l'esprit de plusieurs individus travaillant dans des directions indépendantes, et il en résulte ainsi des questions de priorité difficiles à décider.

Ce n'est pas pour une question de ce genre que j'ose vous écrire aujourd'hui; mais l'idée de l'anémomètre intégrateur m'était venue aussi il y a quelques années, et la description de celui inventé par M. A. von Oettingen, que j'ai lu dans le "Reperitorium" de M. Wild en juillet, 1878, me conduisit, si je n'ai pas mal compris, à la forme même de l'appareil de MM. Shaw et Wilson, et quelques jours plus tard à une autre, plus parfaite à mon avis, et que je n'ai pas encore eu l'occasion de mettre en pratique. C'est celle dont les organes les plus essentiels ont été représentés dans les figures ci-jointes.

Un disque (roller) vertical A peut, comme dans l'instrument de MM. Shaw et Wilson, prendre la même orientation que la girouette et au même temps tourner sur son axe horizontal avec une vitesse proportionnelle à celle du vent. Sur ce disque s'appuie une sphère B, de poids et dimensions convenables, qui est aussi soutenu latéralement par quatre disques verticaux N., E., S., W., situés à angle droit entre eux. Le disque A fait mouvoir la sphère B dans le même plan vertical, et celle-ci les quatre disques latéraux; de sorte que, si les points de contact de ces disques avec la sphère ont lieu sur l'équateur dont le pôle est le point de contact du disque moteur, la vitesse totale de celui-ci s'y trouvera décomposée dans les directions fondamentales N., S., E., W. Dès lors il suffira de munir chaque disque N., E.,



Projection verticale.



Projection horizontale.

S., W., ou bien deux disques quelconques adjacents, d'un compteur spécial, pour obtenir les composantes cardinales du vent.

Cet anémomètre intégrateur sera, comme ceux de MM. Shaw et Wilson et de M. Burton, plus simple que celui de M. von Oettingen, et en outre son action deviendra, pour ainsi dire, indéfinie, la transmission du mouvement s'y effectuant au moyen d'une sphère. Cette transmission se fait ici par roulement sans glissement, ce qui n'a pas lieu dans le système de M. von Oettingen, où cette circonstance constitue un grave défaut.

Pour ne pas prolonger trop cette lettre, je n'insisterai plus sur mon anémomètre, dont les indications peuvent être obtenues de diverses manières, et dont le mécanisme est susceptible de recevoir plusieurs applications.

Si vous croyez que les lignes précédentes contiennent quelque idée nouvelle et utile, je vous prie de vouloir bien les insérer dans votre estimable journal. En attendant je vous remercie d'avance, et veuillez aussi, Monsieur, agréer l'assurance de ma plus haute estimation.

V. VENTOSA

Madrid, le 5 novembre

Geological Results of the Late Gales

THE late gales have had a very powerful effect in redistributing the beach-deposits along our coasts, and though many well-known geological sections have no doubt been covered up

in consequence, many new ones have at the same time been brought to light. In this neighbourhood, for instance, at Whitley-by-the-Sea, near Tynemouth, a section of the highest interest to local geologists has been uncovered within the last few weeks, showing a well-marked unconformity within the Coal-measures, which I, for one, although familiar with the place for years, was totally unaware of, and which, if ever observed before, has certainly never been recorded. For some time to come the section will probably remain exposed at low tides, as the sand which formerly concealed it has been entirely swept away. I will not weary your readers with a detailed description of the section, which will, in due time, be more appropriately published elsewhere, but merely beg to record the observation as an example of the kind of new matter that many geologists resident on or near our coasts will probably come across by searching along the cliff-bases just now.

G. A. LEBOUR

November 15

The Recent Weather

AT 11 o'clock last night two thermometers outside stood at $66^{\circ}75$. It was pitch dark, and blowing fresh from south-south-west. When last tested, these thermometers were not 25° of a degree in error. Was such a temperature ever registered at such an hour on the 13th November before in Great Britain or Ireland?

RICHARD M. BARRINGTON

Bray, Co. Wicklow, Ireland, November 14

Dipladenia amabilis

If it is not already well known, it may interest some of your readers to hear that flowers of the *Dipladenia amabilis* last for a much longer time when placed in water if their tubes be also filled. Even when "too utterly weary" they can be revived in the manner I have mentioned. This may have reference to the fact that these flowers, unlike many creepers, generally turn upwards, and would therefore be likely to catch rainwater.

AMY MULHOLLAND

High Elms, Hayes, Kent, November 13

"The Lepidoptera of Ceylon"

WITH reference to the remarks of Dr. H. Trimen (vol. xxv. p. 32) to this work, now in course of publication under the patronage of the Ceylon Government, of which Parts I. and II. only had then reached him, and especially to the "protest" which he "feels bound to enter" against the name of the artist as there printed at the foot of the several plates, I may be allowed to state that the original drawings made by the native artist, Mr. W. de Alwis (representing about 350 species, or one-third only of the number of Ceylon Lepidoptera known to the author, and that will eventually be figured in this work), which Dr. Trimen states are in the Colombo Museum, were copied by his brother, Mr. George de Alwis, for Sir William H. Gregory, whilst Governor of the Island. These copies are in the author's hands, and it is from them, wherever a suitable figure is available, as well as from specimens of the actual species there represented, that the drawings, and afterwards the lithographing the figures on the stone, were made. The artist's name, as there printed on the several plates of the work, is consequently perfectly correct. In due course, Part IV.—completing vol. i. of this work—will reach Ceylon, wherein the preface is printed, and Dr. Trimen will there see that the native artist to whom he so specially refers, receives the necessary acknowledgment of his labours from the author.

F. MOORE

Penge, S. E.

A GLIMPSE THROUGH THE CORRIDORS OF TIME¹

I.

YOUR Committee has done me much honour by inviting me to deliver the first lecture in this large and very beautiful hall. In accepting the task I was aware that it involved a great responsibility, but I had various grounds of encouragement. I remembered that I was not coming among you as a stranger, and I knew that I had a subject worthy of a memorable occasion. I would I were

¹ Lecture delivered at the Midland Institute, Birmingham, on October 24, 1881, by Prof. Robert S. Ball, LL.D., F.R.S., Andrews Professor of Astronomy in the University of Dublin, and Royal Astronomer of Ireland. Contributed by the Author.